

REMARKS

In view of the above amendments and the following remarks, reconsideration of the rejections contained in the Office Action of May 27, 2004 is respectfully requested.

In order to make various editorial corrections to the specification, the specification has now been reviewed and revised as indicated above. However, no new matter has been added.

Claims 1-19 were originally pending in this application. In the outstanding Office Action, the Examiner rejected claims 1, 3-7, and 9-19 under 35 USC § 102(b) as being anticipated by the Hayashi reference (USP 6,359,235); and rejected claims 1-19 as being unpatentable over the Hayashi reference. However, as indicated above, original claims 1-19 have now been cancelled and replaced with new claims 20-52, including new independent claims 20, 28, 34, 41, and 46. For the reasons discussed below, it is respectfully submitted that the new claims are clearly patentable over the prior art of record.

As explained to the Examiner during the interview of October 14, 2004, the present invention is directed to a method of producing a wiring board with several significant advantages. A discussion of the features that produce these advantages will now be provided with reference to the drawings and specification of the present application. However, reference to the application is intended only for illustrative purposes to aid in the Examiner's understanding of the invention, and is not intended to otherwise limit the scope of the claims to any specific embodiments disclosed in the application.

New independent claims 20, 34, 41, and 46 are directed to various methods of producing a wiring board, and each of these claims recite several steps that are illustrated in Figure 1 and generally described on pages 46-48 of the original specification. In particular, as illustrated in Figure 1b, a first rough surface having concavities 120 therein is formed on at least a portion of a transfer surface of a carrier base 101. As illustrated in Figures 1a and 1c, a wiring transfer sheet 100 is formed by forming a wiring layer 102 on the transfer surface of the carrier base so that a portion of the wiring layer is located *within the concavities* of the first rough surface of the carrier base 101. The wiring transfer sheet is superposed onto a receiving surface of a substrate 104, and the wiring transfer sheet and the substrate 104 are heated and pressurized so as to adhere the wiring layer 102 of the wiring transfer sheet to the substrate 104. The heating and pressurizing also forms a second

rough surface on at least a portion of the receiving surface of the substrate, and the second rough surface is complementary to the first rough surface (see Figure 1f).

As noted during the interview, the steps discussed above provide several important advantages. Firstly, forming the *concavities* in the transfer surface of the carrier base increases the overall contact area between the carrier base and the wiring layer, thus improving adhesion. Secondly, forming the wiring layer on the transfer surface of the carrier base so that a portion of the wiring layer is located *within the concavities* improves the anchoring effect of the wiring layer to the carrier base. As a result, the wiring layer can be securely held by the carrier base and transferred to a substrate without the need for any additional fastening devices or adhesive materials. Moreover, because a second rough surface is formed on at least a portion of the receiving surface of the substrate to which the wiring layer of the wiring transfer sheet is to be transferred, the substrate can subsequently be securely adhered to another object, such as a second wiring board, due to the improved adhesion effects provided by the second rough surface.

The Hayashi reference discloses a method of producing an electrical device including forming a wiring layer on a substrate. In particular, as illustrated in Figures 1d and 1e, a wiring layer 4 is formed on a supporting seat 5, and the wiring layer 4 is transferred to a substrate 1 by superposing the wiring transfer sheet (i.e., the supporting seat 5 and the wiring layer 4) onto a receiving surface of the substrate 1. However the Hayashi reference does not disclose or suggest *forming a first rough surface having concavities therein* on at least a portion of a transfer surface of a carrier base (i.e., the supporting seat 5). Moreover, the Hayashi reference does not disclose or suggest that a portion of the wiring layer 4 is located *within the concavities* of the first rough surface, or that a *second rough surface* is formed on a portion of the receiving surface of the substrate 1, and that the second rough surface is complementary to the first rough surface.

In fact, as noted to the Examiner during the interview of October 14, 2004, the Hayashi reference discloses that adhesive material is used in order to adhere the wiring layer 4 to the supporting seat 5, rather than concavities (see column 12, lines 11-15 and column 13, lines 58-61). Moreover, because it is necessary to provide an adhesive material on the supporting seat 5 in order to hold the wiring layer 4 to the supporting seat 5, the adhesive material actually *prevents* a portion of the wiring layer from being located within concavities formed in the supporting seat 5. Thus, it

is submitted that the Hayashi reference does not anticipate or even suggest the invention recited in new independent claims 20, 34, 41, and 46.

Although not applied in the Office Action, the Examiner requested during the interview that the Applicants consider the disclosure of the Andou reference (USP 6,197,407). As explained at that time, the Andou reference also does not disclose or even suggest forming a first rough surface having *concavities* on at least a portion of a transfer surface of a carrier base, and forming a wiring layer on the transfer surface so that a portion of the wiring layer is located *within the concavities*. Furthermore, the Andou reference does not disclose or even suggest forming a second rough surface on at least a portion of a receiving surface of the substrate, in which the second rough surface is complementary to the first rough surface. Therefore, because the Hayashi reference and the Andou reference do not, either alone or in combination, disclose or suggest the features discussed above, it is respectfully submitted that one of ordinary skill in the art would not be motivated to modify or even combine these references so as to obtain the invention recited in new independent claims 20, 34, 41, and 46. Accordingly, it is respectfully submitted that those new independent claims and the claims that depend therefrom are clearly patentable over the prior art of record.

New independent claim 28 is also directed to a method of producing a wiring board, comprising forming a wiring transfer sheet by forming a wiring layer *directly* on a transfer surface of a carrier base *without any intervening adhesive material* so that the wiring layer directly contacts the transfer surface. As noted in paragraph [0096] of the present application, the non-use of any adhesive material is important because residual adhesive material will not remain on the surface of the wiring layer after the wiring layer has been transferred to a substrate. Moreover, the elimination of the need to apply adhesive material to the carrier base before applying the wiring layer simplifies the method of producing the wiring board.

As noted above and explained to the Examiner during the interview of October 14, 2004, the Hayashi reference clearly teaches that an adhesive material is applied to a supporting seat 5 in order to hold the wiring layer 4 to the supporting seat 5 (see column 12, lines 11-15 and column 13, lines 58-61). Thus, the Hayashi reference actually *teaches away* from the invention recited in new independent claim 34. Furthermore, as also explained to the Examiner during the interview, the Andou reference also does not disclose or even suggest a method of producing a wiring board

comprising forming a wiring transfer sheet by forming a wiring layer directly on a transfer surface of a carrier base *without any intervening adhesive material*, and superposing the wiring transfer sheet onto the receiving surface of the substrate and heating and pressurizing the wiring transfer sheet and the substrate so as to adhere the wiring layer of the wiring transfer sheet to the substrate. Therefore, one of ordinary skill in the art would not be motivated to modify or combine the references so as to obtain the invention recited in new independent claim 28. Accordingly, it is respectfully submitted that new independent claim 28 and the claims that depend therefrom are clearly patentable over the prior art of record.

In view of the above amendments and remarks, it is submitted that the present application is now in condition for allowance. However, if the Examiner should have any comments or suggestions to help speed the prosecution of this application, the Examiner is requested to contact the Applicant's undersigned representative.

Respectfully submitted,

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